

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 40552	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/FI 2003/000949	International filing date (day/month/year) 12 December 2003	(Earliest) Priority Date (day/month/year) 13 December 2002
Applicant LICENTIA OY et al		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 8 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. Certain claims were found unsearchable (see Box No. II)

3. Unity of invention is lacking (see Box No. III)

4. With regard to the title,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

The transmembrane protein AMIGO and uses thereof.

5. With regard to the abstract,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. _____

as suggested by the applicant.

as selected by this Authority, because the applicant failed to suggest a figure.

as selected by this Authority, because this figure better characterizes the invention.

b. none of the figures is to be published with the abstract.

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Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:
 - a. type of material
 - a sequence listing
 - table(s) related to the sequence listing
 - b. format of material
 - in written format
 - in computer readable form
 - c. time of filing/furnishing
 - contained in the international application as filed
 - filed together with the international application in computer readable form
 - furnished subsequently to this Authority for the purposes of search
2. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.: **21, 38-45, 47-57, 59-61 (entirely), 25 (partially)**
because they relate to subject matter not required to be searched by this Authority, namely:

see extra sheet

2. Claims Nos.: **13-14, 16-17, 20, 38, 48 (partially)**

because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
see extra sheet

3. Claims Nos.:

because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

The additional search fees were accompanied by the applicant's protest.
 No protest accompanied the payment of additional search fees.

Box II.1

Claims: 21, 38-45, 47-57, 59-61 (entirely), 25 (partially)

Claims 21, 38-45, 47-57 and 59-61 relate to methods of treatment of the human or animal body by therapy. Claim 25 may relate to a method of treatment of the human or animal body by therapy (PCT Rule 39.1(iv)). Nevertheless, a search has been executed for these claims. The search has been based on the alleged effects of the compounds or compositions.

Box II.2

Claims: 13-14, 16-17, 20, 38, 48 (partially)

Present claims 13-14 and 16-17 relate to a kit comprising a compound defined by reference to a desirable characteristic or property, namely being capable of detecting AMIGO or allelic variants thereof. The claims cover all compounds having this characteristic or property, whereas the application provides support within the meaning of Article 6 PCT and / or disclosure within the meaning of Article 5 PCT for only a very limited number of such compounds. Additionally, previously known compounds may be included in the scope of the present claims. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claims also lack clarity (Article 6 PCT). An attempt is made to define the product/compound by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible.

Consequently, the search of claims 13-14 and 16-17 has been limited to the general aspects of kits comprising primers or probes, which may detect AMIGO.

.../...

Claim 20 relates in part to a compound defined by reference to a desirable characteristic or property, namely being an AMIGO agonist/antagonist. The claim covers all compounds having this characteristic or property, whereas the application lacks support for such compounds. Additionally, previously known compounds may be included in the scope of the present claim. In the present case, the claim so lacks support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claim also lacks clarity (Article 6 PCT). An attempt is made to define the compound by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently, the search of claim 20 has not covered AMIGO agonists or antagonists.

Claims 38 and 48 in part relate to a molecule defined by reference to a desirable characteristic or property, namely that selectively inhibits AMIGO binding to the AMIGO receptor (with or without binding to the EGFR receptor). The claims cover all compounds having this characteristic or property, whereas the application lacks support for such compounds. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claims also lack clarity (Article 6 PCT). An attempt is made to define the compound by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently, the search of claims 38 and 48 has not covered steps (b) (v) and (b) (vi).

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Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

Transmembrane proteins AMIGO, AMIGO2 and AMIGO3 (Amphoterin induced gene and orphan receptor), wherein the extracellular part contains six leucine-rich repeats (LRRs) and one immunoglobulin domain. Use of said proteins for modulating growth, migration, axonal growth, myelination, fasciculation or proliferation of neuronal cells and for treating cancer, tumour growth or metastasis. Methods of screening for agents which modulate the interaction between two AMIGO compounds or between AMIGO and epidermal growth factor receptor (EGFR).

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A. CLASSIFICATION OF SUBJECT MATTER

IPC7: C07K 14/71, A61K 38/17, A61P 25/28, A61P 25/02, A61P 35/00
 According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	BIOSIS, Accession number PREV200300324932, Kuja-Panula J et al, "Amigo1-A transmembrane protein implicated in fiber tract development defines a novel protein family with leucine-rich repeats", Society for Neuroscience Abstract Viewer and Itinerary Planner, 2002, Vol. 2002, Abstract No. 628.17	13-14, 16-36, 38-47, 57-58
A	—	1-12, 15, 37, 48-56, 59-61

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
 18 February 2004

Date of mailing of the international search report
 19-02-2004

Name and mailing address of the ISA/
 Swedish Patent Office
 Box 5055, S-102 42 STOCKHOLM
 Facsimile No. + 46 8 666 02 86

Authorized officer
 IDA CHRISTENSEN/BS
 Telephone No. + 46 8 782 25 00

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Molecular Biology of the Cell, Volume 12, Nr. Supplement, November 2001, "Cloning and biological properties of a novel LRRs (leucine-rich repeats) containing protein induced on amphotericin matrix (AMIGO)", pages 192a-193a	13-14, 16-36, 38-47, 57-58
A	---	1-12, 15, 37, 48-56, 59-61
E,X	WO 2004003165 A2 (IMCLONE SYSTEMS INCORPORATED), 8 January 2004 (08.01.2004), The whole document & STN International, File Registry, RN 640808-22-6 (human clone S30-21616/DEGA), 100% identity in 522 aa overlap with SEQ.ID.No. 4 --- -----	1-36, 38-58

INTERNATIONAL SEARCH REPORT
Information on patent family members

24/12/2003

International application No.

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WO 2004003165 A2 08/01/2004 NONE